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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/567,551

03/06/2006

Akihiko Nishio

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9256

52989

7590

07/07/2010

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EXAMINER

CASCA, FRED A

ART UNIT

PAPER NUMBER

2617

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/567,551	<b>Applicant(s)</b> NISHIO ET AL.	
	<b>Examiner</b> FRED A. CASCA	<b>Art Unit</b> 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 21-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This action is in response to applicant's amendment filed on April 09, 2010. Claims 21-29 are still pending in the present application. **This Action is made FINAL.**

#### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 21-23, 25, 27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura et al (US 2002/0094011 A1), further in view of Hwang et al (US 2003/0108013 A1).

Referring to claim 21, Okumura discloses a transmitting apparatus that transmits pilot signals to a plurality of user equipments (Par. 11 and 71), the transmitting apparatus comprising: a generator configured to generate a signal including pattern information indicating which pilot pattern among at least two pilot patterns is respectively assigned to each time slot (figure 8) of a plurality of time slots (Fig. 8 and Par. 71, "generating pilot symbols of a known pattern", "inserted into data symbols ... to be transmitted"), the pilot patterns representing an arrangement of pilot signals,

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a transmitter configured to transmit the signal to the plurality of user equipments, and to transmit the pilot signals according to the pilot patterns respectively assigned to the time slots (Par. 71, Par. 123 and abstract, “pilot symbols of a known pattern periodically ... to be transmitted”, note that in a CDMA system pilot patterns are transmitted to the user equipments).

Okumura does not specifically disclose at least two of the time slots being assigned different ones of the pilot patterns.

Hwang discloses at least two of the time slots being assigned different ones of the pilot patterns (Par. 56, “different pilot patterns”).

It would have been obvious to a person of ordinary skill in the art at the time of invention to modify the invention of Okumura in the format claimed by incorporating the teachings of Hwang, for the purpose of providing an efficient communication system.

Referring to claim 22, the combination of Okumura/Hwang discloses the transmitting apparatus according to claim 21, and further discloses a selector configured to select the pilot pattern assigned to the time slot based on at least one of (A) parameters concerning interference by multipath, (B) parameters reflecting a propagation environment, and (C) parameters reflecting a delay dispersion (Okumura, Par. 8, note that in coherent signaling e.g., coherent DS-CDMA, pilot signals are used based on at least one of (A) parameters concerning interference by multipath, (B) parameters reflecting a propagation environment, and (C) parameters reflecting a delay dispersion).

Referring to claim 23, the combination of Okumura/Hwang discloses the transmitting apparatus according to claim 21, and further discloses

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a multiplexer configured to multiplex the pilot signals of the pilot patterns and user data according to the pattern information to generate a multiplexed signal, wherein: the transmitter is configured to transmit the multiplexed signal (Fig. 8 and the corresponding paragraphs and Par. 8, note that the pilot symbols are multiplexed).

Claims 25 and 27 recite features analogous to the features of claim 21, thus they are rejected for the same reasons as noted above.

Referring to claim 29, the combination of Okumura/Hwang further discloses a base station comprising the transmitting apparatus according to claim 21 (Okumura, Par. 4, 8, 14, and 23, note that a CDMA communication system refers to a cellular communication system that inherently includes a base station).

4. Claims 24, 26, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura et al (US 2002/0094011 A1), further in view of Hwang et al (US 2003/0108013 A1) and still further in view of Sibecas (US 2004/0128605).

Referring to claim 24, the combination of Okumura/Hwang discloses the transmitting apparatus according to claim 21.

The combination does not specifically disclose different pilot patterns are mutually different arrangement densities of the pilot signals in at least one of a frequency domain and a time domain.

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Sibecas discloses pilot different pilot patterns are mutually different arrangement densities of the pilot signals in at least one of a frequency domain and a time domain (Par. 51, “patterns with higher density patterns,” “lower density of pilot symbols”, note that pilot signals have low or high density patterns or higher density patterns, thus, they would be of different density arrangements).

It would have been obvious to a person of ordinary skill in the art at the time of invention to modify the combination in the format, for the purpose of providing an efficient signaling system system.

Claims 26 and 28 recite features analogous to the features of claim 24, thus, they are rejected for the same reason as noted above.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 21-29 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred A. Casca whose telephone number is (571) 272-7918. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Harper, can be reached at (571) 272-7605. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Fred A. Casca/

Examiner, Art Unit 2617

/VINCENT P. HARPER/

Supervisory Patent Examiner, Art Unit 2617